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EXAMINER	
NASH, LASHANYA RENEE	
ART UNIT	**PAPER NUMBER**
2153	

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.**	**Applicant(s)**
	09/919,527	RHODES, N. LEE
	Examiner	**Art Unit**
	LaShanya R. Nash	2153

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to an amendment filed July 31, 2006. Claims 1-48 are presented for further consideration. Claims 37 and 45 are currently amended. Claim 48 is new.

Response to Arguments

Applicant's arguments with respect to claims 1-47 have been considered but are moot in view of the new grounds of rejection is made in view of newly found reference et Rosenburg et al. (US Patent Application Publication 2003/0023951).

Examiner again suggests further amending the independent claims to further include limitations which explicitly describe that usage data for the statistical model is tracked, accumulated, and subsequently updated independently for each user ID or customer's usage, as disclosed in Applicant's specification (pages 11-13), so as to clearly distinguish over the prior art on record.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Dietz et al (US Patent 6,839,751) in view of Rosenberg et al. (US Patent Application Publication 2003/0023951), hereinafter referred to as Dietz and Rosenberg.

In reference to claim 1, Dietz discloses a method for re-using information from data transactions for maintaining statistics in network monitoring. Dietz discloses (abstract; column 4, lines 14-33):

- A method for analyzing a stream of usage data (Figure 3; column 8, lines 45-56), comprising:
  - Generating a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) from a set of record events (i.e. flow-entry; column 10, line 55-column 11, line 5);
  - Receiving a most recent record event, (i.e. new packet of flow arrives at monitor; column 8, lines 45-62; Figure 3-item 302) and
  - Updating the statistical model using the most recent event by adding the most recent record to the statistical model (updating statistical measures stored in the flow-entry; column 11, lines 50-58; column 12, lines 55-67), wherein an identifier is associated with each record event (i.e. unique flow signature; column 11, lines 15-49),

However, the reference fails to disclose updating only a portion of the statistical model associated with the identifier. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Rosenberg.

In an analogous art, Rosenberg discloses a method for data analysis and statistical modeling (abstract). Rosenberg further discloses updating only a portion of the statistical model associated with the identifier (i.e. updating statistical model for the new input data; paragraphs [0071]-[0073]; paragraph [0067]). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to present statistical summaries in a coherent and efficient manner for subset analysis to tackle large-scale problems (Rosenberg; paragraph [0067], lines 22-24; paragraph [0073], lines 8-12).

In reference to claim 13, Dietz discloses a method for re-using information from data transactions for maintaining statistics in network monitoring. Dietz discloses (abstract; column 4, lines 14-33):

- A method for analyzing a stream of usage data (Figure 3; column 8, lines 45-56) over a rolling time interval, comprising:
  - Defining a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) from a set of record events (i.e. flow-entry; column 10, line 55-column 11, line 5);
  - Defining the rolling time interval to include a plurality of update time intervals (i.e. time interval; column 33, line 15-column 34, line 30);
  - Receiving a record event from the stream of network usage data over the rolling time interval, (i.e. new packet of flow arrives at monitor; column 8, lines 45-62; Figure 3-item 302);

- Storing the record event for each update interval in a history cache (i.e. cache memory containing flow database; column 17, lines 4-34);
- Generating a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) over the rolling time interval using the statistical model and each record event stored in the history cache (i.e. flow-entry; column 10, line 55-column 11, line 5);
- Updating the statistical model using the statistical model and a most recent event for a most recent update time interval (updating statistical measures stored in the flow-entry; column 11, lines 50-58; column 12, lines 55-67).

However, the reference fails to disclose updating only a portion of the statistical model associated with the most recent record. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Rosenberg.

In an analogous art, Rosenberg discloses a method for data analysis and statistical modeling (abstract). Rosenberg further discloses updating only a portion of the statistical model associated with the most recent record (i.e. updating statistical model for the new input data; paragraphs [0071]-[0073]; paragraph [0067]). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to present statistical summaries in a coherent and efficient manner for subset analysis to tackle large-scale problems (Rosenberg; paragraph [0067], lines 22-24; paragraph [0073], lines 8-12).

Claim 23, 25-26, 37, 45 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietz et al (US Patent 6,839,751), in view of Rosenberg et al. (US Patent Application Publication 2003/0023951) and Kawasaki (US Patent 6,539,375), hereinafter referred to as Dietz, Rosenberg, and Kawasaki.

In reference to claim 23, Dietz discloses a method for re-using information from data transactions for maintaining statistics in network monitoring. Dietz discloses (abstract; column 4, lines 14-33):

- A method for analyzing a stream of usage data (Figure 3; column 8, lines 45-56) over a rolling time interval, comprising:
    - Defining a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) from a set of record events over a rolling time interval (i.e. flow-entry; column 10, line 55-column 11, line 5);
    - Defining the rolling time interval to include a plurality of update time intervals (i.e. time interval; column 33, line 15-column 34, line 30);
    - Receiving a record event from the stream of network usage data over the rolling time interval, (i.e. new packet of flow arrives at monitor; column 8, lines 45-62; Figure 3-item 302);
    - Storing the record event for each update interval in a history cache (i.e. cache memory containing flow database; column 17, lines 4-34);
    - Generating a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) over the rolling time interval using the statistical model and each record event stored in the history cache (i.e. flow-

entry; column 10, line 55-column 11, line 5);

- Updating the statistical model using the statistical model and a most recent event for a most recent update time interval (updating statistical measures stored in the flow-entry; column 11, lines 50-58; column 12, lines 55-67).

However, the reference fails to disclose updating only a portion of the statistical model associated with the most recent record. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Rosenberg.

In an analogous art, Rosenberg discloses a method for data analysis and statistical modeling (abstract). Rosenberg further discloses updating only a portion of the statistical model associated with the most recent record (i.e. updating statistical model for the new input data; paragraphs [0071]-[0073]; paragraph [0067]). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to present statistical summaries in a coherent and efficient manner for subset analysis to tackle large-scale problems (Rosenberg; paragraph [0067], lines 22-24; paragraph [0073], lines 8-12). Although Dietz and Rosenberg teach substantial features of the invention, the reference fails to disclose: wherein each record event is associated with a user identifier. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Kawasaki.

In an analogous art, Kawasaki discloses associating record events to a use identification (i.e. user profile), used in a method for tracking network (i.e. Internet)

usage of users, (column 2, lines 47-54; column 4, lines 42-61). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to identify network usage of specific users session tracking in client/server exchanges, (column 26, lines 17-37).

In reference to claim 37, Dietz discloses a system for re-using information from data transactions for maintaining statistics in network monitoring. Dietz discloses (abstract; column 4, lines 14-33):

- A network usage analysis system for analyzing a stream of network usage data (Figure 3; column 8, lines 45-56), comprising:
  - A data analysis system server (i.e. analyzer; column 6, lines 5-20; Figure 1-item 108) which generates a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) from a set of record events (i.e. flow-entry; column 10, line 55-column 11, line 5);
  - Receiving a most recent record event, (i.e. new packet of flow arrives at monitor; column 8, lines 45-62; Figure 3-item 302) and
  - Updating the statistical model using the most recent event by adding the most recent record to the statistical model (updating statistical measures stored in the flow-entry; column 11, lines 50-58; column 12, lines 55-67), wherein an identifier is associated with each record event (i.e. unique flow signature; column 11, lines 15-49).

However, the reference fails to disclose updating only a portion of the statistical model

associated with the identifier. Nonetheless, this would have been an obvious modification to the aforementioned system to one of ordinary skill in the art at the time of the invention, as further evidenced by Rosenberg.

In an analogous art, Rosenberg discloses a system for data analysis and statistical modeling (abstract). Rosenberg further discloses updating only a portion of the statistical model associated with the identifier (i.e. updating statistical model for the new input data; paragraphs [0071]-[0073]; paragraph [0067]). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to present statistical summaries in a coherent and efficient manner for subset analysis to tackle large-scale problems (Rosenberg; paragraph [0067], lines 22-24; paragraph [0073], lines 8-12). Although Dietz and Rosenberg teach substantial features of the invention, the reference fails to disclose: wherein each record event is associated with a customer usage. Nonetheless, this would have been an obvious modification to the aforementioned system to one of ordinary skill in the art at the time of the invention, as further evidenced by Kawasaki.

In an analogous art, Kawasaki discloses associating record events to a customer usage (i.e. user profile), used in a method for tracking network (i.e. Internet) usage of users, (column 2, lines 47-54; column 4, lines 42-61). This modification to the aforementioned system would have been obvious, because one of ordinary skill in the art would have been so motivated to identify network usage of specific users session tracking in client/server exchanges, (column 26, lines 17-37).

In reference to claim 45, Dietz discloses a system comprising hardware and software for re-using information from data transactions for maintaining statistics in network monitoring. Dietz discloses (abstract; column 4, lines 14-33):

- A computer-readable medium having computer executable instructions (i.e. software; column 8, line 45-50) for performing a method for analyzing a of usage data, the method (Figure 3; column 8, lines 50-56), comprising:
  - Generating a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) from a set of record events (i.e. flow-entry; column 10, line 55-column 11, line 5);
  - Receiving a most recent record event, (i.e. new packet of flow arrives at monitor; column 8, lines 45-62; Figure 3-item 302) and
  - Updating the statistical model using the most recent event by adding the most recent record to the statistical model (updating statistical measures stored in the flow-entry; column 11, lines 50-58; column 12, lines 55-67), wherein an identifier is associated with each record event (i.e. unique flow signature; column 11, lines 15-49)

However, the reference fails to disclose updating only a portion of the statistical model associated with the identifier. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Rosenberg.

In an analogous art, Rosenberg discloses a method for data analysis and

statistical modeling (abstract). Rosenberg further discloses updating only a portion of the statistical model associated with the identifier (i.e. updating statistical model for the new input data; paragraphs [0071]-[0073]; paragraph [0067]). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to present statistical summaries in a coherent and efficient manner for subset analysis to tackle large-scale problems (Rosenberg; paragraph [0067], lines 22-24; paragraph [0073], lines 8-12). Although Dietz and Rosenberg teach substantial features of the invention, the reference fails to disclose: wherein each record event is associated with a customer usage. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Kawasaki.

In an analogous art, Kawasaki discloses associating record events to a customer usage (i.e. user profile), used in a method for tracking network (i.e. Internet) usage of users, (column 2, lines 47-54; column 4, lines 42-61). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to identify network usage of specific users session tracking in client/server exchanges, (column 26, lines 17-37).

In reference to claim 48, Dietz discloses a method for re-using information from data transactions for maintaining statistics in network monitoring. Dietz discloses (abstract; column 4, lines 14-33):

- A network method for analyzing a stream of network usage data (Figure 3; column 8,

lines 45-56), comprising:

- Tracking and accumulating a set of usage data record events (i.e. analyzer; column 6, lines 5-20; Figure 1-item 108);
- Generating a statistical model from the set of usage data record events (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) from a set of record events (i.e. flow-entry; column 10, line 55-column 11, line 5);
- Receiving a most recent record event, (i.e. new packet of flow arrives at monitor; column 8, lines 45-62; Figure 3-item 302) and
- Updating the statistical model using the most recent event by adding the most recent record to the statistical model (updating statistical measures stored in the flow-entry; column 11, lines 50-58; column 12, lines 55-67), wherein an identifier is associated with each record event (i.e. unique flow signature; column 11, lines 15-49).

However, the reference fails to disclose updating only a portion of the statistical model associated with the customer usage. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Rosenberg.

In an analogous art, Rosenberg discloses a method for data analysis and statistical modeling (abstract). Rosenberg further discloses updating only a portion of the statistical model associated with the identifier (i.e. updating statistical model for the new input data; paragraphs [0071]-[0073]; paragraph [0067]). This modification to the

aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to present statistical summaries in a coherent and efficient manner for subset analysis to tackle large-scale problems (Rosenberg; paragraph [0067], lines 22-24; paragraph [0073], lines 8-12). Although Dietz and Rosenberg teach substantial features of the invention, the reference fails to disclose: wherein each record event is associated with a customer usage. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Kawasaki.

In an analogous art, Kawasaki discloses associating record events to a customer usage (i.e. user profile), used in a method for tracking network (i.e. Internet) usage of users, (column 2, lines 47-54; column 4, lines 42-61). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to identify network usage of specific users session tracking in client/server exchanges, (column 26, lines 17-37).

In reference to claim 25, Dietz further discloses wherein generating a statistical model from the set of record events includes generating an aggregation table (i.e. flow-entry table) for tracking an aggregation of record events associated with an identifier (columns 11-12).

In reference to claim 26, Dietz discloses the most recent record is associated with an identifier (i.e. unique flow signature); and wherein updating the statistical model includes

updating only the aggregation of the record events in the tracking table for that identifier i.e. updating statistical measures of the flow-entry that matches the unique flow signature/previously encountered flow; column 17, lines 9-60; Figure 3-item 322).

Claims 29, 31-36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dietz et al (US Patent 6,839,751), in view of Rosenberg et al. (US Patent Application Publication 2003/0023951) and Aboulnaga et al. (US Patent 6,460,045), hereinafter referred to as Dietz, Rosenberg and Aboulnaga.

In reference to claim 29, Dietz discloses a method for re-using information from data transactions for maintaining statistics in network monitoring. Dietz discloses (abstract; column 4, lines 14-33):

- A method for analyzing a stream of usage data (Figure 3; column 8, lines 45-56) over a rolling time interval, comprising:
    - Defining a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) from a set of record events (i.e. flow-entry; column 10, line 55-column 11, line 5);
    - Defining the rolling time interval to include a plurality of update time intervals (i.e. time interval; column 33, line 15-column 34, line 30);
    - Receiving a record event from the stream of network usage data over the rolling time interval, (i.e. new packet of flow arrives at monitor; column 8, lines 45-62; Figure 3-item 302);
    - Storing the record event for each update interval in a history cache (i.e. cache

memory containing flow database; column 17, lines 4-34);

- Generating a statistical model (i.e. statistical measures/network usage metrics; column 3, lines 14-33; column 17, lines 35-53) over the rolling time interval using the statistical model and each record event stored in the history cache (i.e. flow-entry; column 10, line 55-column 11, line 5);
- Updating the statistical model using the statistical model and a most recent event for a most recent update time interval (updating statistical measures stored in the flow-entry; column 11, lines 50-58; column 12, lines 55-67),

However, the reference fails to disclose updating only a portion of the statistical model associated with the most recent record. Nonetheless, this would have been an obvious modification to the aforementioned method to one of ordinary skill in the art at the time of the invention, as further evidenced by Rosenberg.

In an analogous art, Rosenberg discloses a method for data analysis and statistical modeling (abstract). Rosenberg further discloses updating only a portion of the statistical model associated with the most recent record (i.e. updating statistical model for the new input data; paragraphs [0071]-[0073]; paragraph [0067]). This modification to the aforementioned method would have been obvious, because one of ordinary skill in the art would have been so motivated to present statistical summaries in a coherent and efficient manner for subset analysis to tackle large-scale problems (Rosenberg; paragraph [0067], lines 22-24; paragraph [0073], lines 8-12).

Although Dietz and Rosenberg teach substantial features of the invention, the reference fails to disclose: the method generating a histogram statistical model representative of

the network data, wherein the histogram having a first axis illustrating total usage defined by a number of bins, each bin having a usage variable range, and a second axis defined by a frequency corresponding to a number of users having a total usage within the usage variable range of each bin. Nonetheless, histogram statistical models were well known in the art at the time of the invention, as further evidenced by Aboulnaga. Therefore, this limitation would have been an obvious modification to the aforementioned method, as disclosed by the references, for one of ordinary skill in the art.

In an analogous art, Aboulnaga discloses a method of building histogram statistical models, (column 5, line 37 to column 6, line 3). Aboulnaga further shows building a histogram that includes a first axis defined a number of bins (i.e. bins; Figure 6-*BUCKETS*), each bin having a variable range (i.e. high to low; Figure 3; column 6, lines 30-55) and a second axis defined by a frequency (Figure 3&6) within the variable range of each bin, (columns 5-10). This modification would have been obvious to one of ordinary skill in the art, so as employ the bins and buckets of the flow-entry table (Dietz; column 17, lines 9-35) to increase the accuracy of the statistical model estimations and thereby increasing process effectiveness, (Aboulnaga column 1, lines 54-55).

In reference to claim 31, Dietz further discloses wherein defining the statistical model includes an aggregation table (i.e. flow-entry table) of each record event stored in the history cache (i.e. flow-entry table), (columns 11-12).

In reference to claim 32, Dietz discloses wherein the history cache is an array of memory segments, wherein the number of memory segments is equal to the number of update time intervals in the rolling time interval, (columns 17-18).

In reference to claim 33, Dietz discloses defining the statistical model to include an aggregation of each record event stored in the history cache (i.e. flow-entry table; columns 17-18).

In reference to claim 34, Dietz discloses defining an index array associated including a set of contiguous index segments, wherein each index segment including a pointer to the memory segment storing in the history cache storing the next consecutive record event, (i.e. lookup engine; columns 17-18).

In reference to claim 35, Dietz discloses defining a first pointer to the index segment associated with the memory segment storing the least recent record event, (i.e. lookup engine; columns 17-18).

In reference to claim 36, Aboulnaga discloses generating a histogram statistical model from the aggregation table (column 5, line 37 to column 6, line 3); and Dietz discloses updating only the portion of the histogram statistical model associated with most recent record event, (column 17, lines 9-60).

Claims 2-6, 8-10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietz and Rosenberg as applied to claim 1 above, and further in view of Steinbiss et al. (US Patent 6,823,307), hereinafter referred to as Steinbiss.

In reference to claim 2, although Dietz and Rosenberg disclose substantial features of the aforementioned method, the references fail to explicitly disclose the method further comprising the step of: updating the statistical model includes removing a least recent event from the statistical model. Nonetheless, this would have been an obvious modification to the aforementioned method, to one of ordinary skill in the art at the time of the invention, as further evidenced by Steinbiss.

In an analogous art, Steinbiss discloses a method for employing stochastic models that involves storing recently recognized elements in a cache, (abstract; column 2, lines 25-38; and column 5, lines 15-30). Steinbiss further discloses removing the least recently stored element, (column 5, line 60 to column 6, line 7). This modification would have been obvious, because one of ordinary skill in the art would have been so motivated to implement this feature so as to maximize available memory space, thereby reducing cost associated with larger capacity cache memories, (Steinbiss column 5, line 66 to column 6, line 3).

In reference to claim 3, although Dietz and Rosenberg disclose substantial features of the aforementioned method such as storing the set of records in a history cache (column 17, lines 18-20), the references fail to explicitly disclose the method further comprising the step of: if the history cache is full, updating the statistical model

includes removing a least recent event from the statistical model. Nonetheless, this would have been an obvious modification to the aforementioned method, to one of ordinary skill in the art at the time of the invention, as further evidenced by Steinbiss.

In an analogous art, Steinbiss discloses a method for employing stochastic models that involves storing recently recognized elements in a cache, (abstract; column 2, lines 25-38; and column 5, lines 15-30). Steinbiss further discloses once the cache is full, removing the least recently stored element, (column 5, line 60 to column 6, line 7). This modification would have been obvious, because one of ordinary skill in the art would have been so motivated to implement this feature so as to maximize available memory space, thereby reducing cost associated with larger capacity cache memories, (Steinbiss column 5, line 66 to column 6, line 3).

In reference to claim 4, Dietz discloses defining the statistical model to include an aggregation of each record event stored in the history cache (columns 11-12).

In reference to claim 5, Dietz further discloses wherein generating a statistical model from the set of record events includes generating an aggregation table (i.e. flow-entry table) for tracking an aggregation of record events associated with an identifier (columns 11-12).

In reference to claims 6, 9 Dietz discloses generating a complex statistical model representative of the network data from the aggregation table (column 17, lines 35-59).

In reference to claim 8, Dietz discloses the most recent record is associated with an identifier (i.e. unique flow signature); and wherein updating the statistical model includes updating only the aggregation of the record events in the tracking table for that identifier i.e. updating statistical measures of the flow-entry that matches the unique flow signature/previously encountered flow; column 17, lines 9-60; Figure 3-item 322).

In reference to claim 10, Dietz discloses updating the statistical model includes updating only a portion of the complex statistical model associated with an identifier (columns 17-18).

In reference to claim 12, Steinbiss discloses upon receiving the most recent record event replacing the least recent record even stored in the history cache with the most recent record event, (column 5, line 60 to column 6, line 7).

Claims 7,11, 14-22, and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietz, Rosenberg and Steinbiss as applied to claim 3 above, and further in view of Aboulnaga et al. (US Patent 6,460,045), hereinafter referred to as Dietz, Rosenberg and Aboulnaga.

In reference to claims 7 and 11, although Dietz, Rosenberg and Steinbiss discloses substantial features of the claimed invention, the references fail to show generating a histogram statistical model representative of the network data from the aggregation

table. Nonetheless, histogram statistical models were well known in the art at the time of the invention, as further evidenced by Aboulnaga. Therefore, this limitation would have been an obvious modification to the aforementioned method, as disclosed by the references, for one of ordinary skill in the art.

In an analogous art, Aboulnaga discloses a method of building histogram statistical models, (column 5, line 37 to column 6, line 3). Aboulnaga further shows building a histogram that includes a first axis defined a number of bins (i.e. bins; Figure 6-*BUCKETS*), each bin having a variable range (i.e. high to low; Figure 3; column 6, lines 30-55) and a second axis defined by a frequency (Figure 3&6) within the variable range of each bin, (columns 5-10). This modification would have been obvious to one of ordinary skill in the art, so as employ the bins and buckets of the aggregation table (I.e. flow-entry table; Dietz; column 17, lines 9-35) to increase the accuracy of the statistical model estimations and thereby increasing process effectiveness, (Aboulnaga column 1, lines 54-55).

In reference to claim 14, Steinbiss further discloses wherein if the history cache is full, updating the statistical model further includes removing a least recent record event set associated with a least recent update time interval from the statistical model, (column 5, line 60 to column 6, line 7).

In reference to claim 15, Dietz discloses defining the statistical model to include an aggregation of each record event stored in the history cache (i.e. flow-entry table;

columns 17-18).

In reference to claim 16, Dietz discloses wherein the history cache is an array of memory segments, wherein the number of memory segments is equal to the number of update time intervals in the rolling time interval, (columns 17-18).

In reference to claim 17, Dietz discloses storing each record event in a memory segment in the history cache, (columns 17-18).

In reference to claim 18, Dietz discloses defining an index array associated including a set of contiguous index segments, wherein each index segment including a pointer to the memory segment storing in the history cache storing the next consecutive record event, (i.e. lookup engine; columns 17-18).

In reference to claim 19, Dietz discloses defining a first pointer to the index segment associated with the memory segment storing the least recent record event, (i.e. lookup engine; columns 17-18).

In reference to claim 20, Steinbiss discloses wherein upon receiving a most recent record event the method further comprising replacing the least recent record event stored in the history cache with the most recent record event, (column 5, line 60 to column 6, line 7).

In reference to claim 21, Dietz discloses, moving the first pointer to the next contiguous index segment, (i.e. lookup engine; columns 17-18).

In reference to claim 22, Dietz discloses further defining a second pointer to the index segment associated with the memory segment storing the most recent record event, (i.e. lookup engine; columns 17-18).

In reference to claim 46, Dietz, Rosenberg, Steinbiss, and Aboulnaga explicitly show the limitations, as previously addressed for claims 1, 3,4,5,8,11,18,19,20,21, and 29, due to claim 46 reciting the combination of all of the limitations of the aforementioned claims.

In reference to claim 47, Aboulnaga shows wherein the histogram that includes a first axis defined a number of bins (i.e. bins; Figure 6-*BUCKETS*), each bin having a variable range (i.e. high to low; Figure 3; column 6, lines 30-55) and a second axis defined by a frequency (Figure 3&6) within the variable range of each bin, (columns 5-10).

Claims 24 and 38-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietz, Rosenberg and Kawasaki as applied to claims 23 and 37 above, and further in view of Steinbiss et al. (US Patent 6,823,307), hereinafter referred to as Steinbiss.

In reference to claim 24, although Dietz, Rosenberg and Kawasaki disclose

substantial features of the aforementioned method such as storing the set of records in a history cache (column 17, lines 18-20), the references fail to explicitly disclose the method further comprising the step of: if the history cache is full, updating the statistical model includes removing a least recent event from the statistical model. Nonetheless, this would have been an obvious modification to the aforementioned method, to one of ordinary skill in the art at the time of the invention, as further evidenced by Steinbiss.

In an analogous art, Steinbiss discloses a method for employing stochastic models that involves storing recently recognized elements in a cache, (abstract; column 2, lines 25-38; and column 5, lines 15-30). Steinbiss further discloses once the cache is full, removing the least recently stored element, (column 5, line 60 to column 6, line 7). This modification would have been obvious, because one of ordinary skill in the art would have been so motivated to implement this feature so as to maximize available memory space, thereby reducing cost associated with larger capacity cache memories, (Steinbiss column 5, line 66 to column 6, line 3).

In reference to claims 2 and 38, although Dietz discloses substantial features of the aforementioned method, the reference fails to explicitly disclose the method further comprising the step of: updating the statistical model includes removing a least recent event from the statistical model. Nonetheless, this would have been an obvious modification to the aforementioned method, to one of ordinary skill in the art at the time of the invention, as further evidenced by Steinbiss.

In an analogous art, Steinbiss discloses a method for employing stochastic models that involves storing recently recognized elements in a cache, (abstract; column

2, lines 25-38; and column 5, lines 15-30). Steinbiss further discloses removing the least recently stored element, (column 5, line 60 to column 6, line 7). This modification would have been obvious, because one of ordinary skill in the art would have been so motivated to implement this feature so as to maximize available memory space, thereby reducing cost associated with larger capacity cache memories, (Steinbiss column 5, line 66 to column 6, line 3).

In reference to claim 39, although Dietz discloses substantial features of the aforementioned method such as storing the set of records in a history cache (column 17, lines 18-20), the reference fails to explicitly disclose the method further comprising the step of: if the history cache is full, updating the statistical model includes removing a least recent event from the statistical model. Nonetheless, this would have been an obvious modification to the aforementioned method, to one of ordinary skill in the art at the time of the invention, as further evidenced by Steinbiss.

In an analogous art, Steinbiss discloses a method for employing stochastic models that involves storing recently recognized elements in a cache, (abstract; column 2, lines 25-38; and column 5, lines 15-30). Steinbiss further discloses once the cache is full, removing the least recently stored element, (column 5, line 60 to column 6, line 7). This modification would have been obvious, because one of ordinary skill in the art would have been so motivated to implement this feature so as to maximize available memory space, thereby reducing cost associated with larger capacity cache memories, (Steinbiss column 5, line 66 to column 6, line 3).

In reference to claim 40, Dietz discloses defining the statistical model to include an aggregation of each record event stored in the history cache (columns 11-12).

In reference to claim 41, Dietz further discloses wherein generating a statistical model from the set of record events includes generating an aggregation table (i.e. flow-entry table) for tracking an aggregation of record events associated with an identifier (columns 11-12).

In reference to claims 42,and 44 Dietz discloses generating a complex statistical model representative of the network data from the aggregation table (column 17, lines 35-59).

In reference to claim 43, Dietz discloses the most recent record is associated with an identifier (i.e. unique flow signature); and wherein updating the statistical model includes updating only the aggregation of the record events in the tracking table for that identifier i.e. updating statistical measures of the flow-entry that matches the unique flow signature/previously encountered flow; column 17, lines 9-60; Figure 3-item 322).

Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietz, Rosenberg and Kawasaki as applied to claim 23 above, and further in view of Aboulnaga et al. (US Patent 6,460,045), hereinafter referred to as Aboulnaga.

In reference to claim 27, although Dietz, Rosenberg and Kawasaki disclose substantial features of the claimed invention, the references fail to show generating a histogram statistical model representative of the network data from the aggregation table. Nonetheless, histogram statistical models were well known in the art at the time of the invention, as further evidenced by Aboulnaga. Therefore, this limitation would have been an obvious modification to the aforementioned method, as disclosed by the references, for one of ordinary skill in the art.

In an analogous art, Aboulnaga discloses a method of building histogram statistical models, (column 5, line 37 to column 6, line 3). Aboulnaga further shows building a histogram that includes a first axis defined a number of bins (i.e. bins; Figure 6-*BUCKETS*), each bin having a variable range (i.e. high to low; Figure 3; column 6, lines 30-55) and a second axis defined by a frequency (Figure 3&6) within the variable range of each bin, (columns 5-10). This modification would have been obvious to one of ordinary skill in the art, so as employ the bins and buckets of the aggregation table (I.e. flow-entry table; Dietz; column 17, lines 9-35) to increase the accuracy of the statistical model estimations and thereby increasing process effectiveness, (Aboulnaga column 1, lines 54-55).

In reference to claim 28, Dietz discloses updating the statistical model includes updating only a portion of the complex statistical model associated with an identifier (columns 17-18).

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dietz and Rosenberg and Aboulnaga as applied to claim 29 above, and further in view of Steinbiss et al. (US Patent 6,823,307), hereinafter referred to as Steinbiss.

In reference to claim 30, although Dietz, Rosenberg and Aboulnaga disclose substantial features of the aforementioned method such as storing the set of records in a history cache (column 17, lines 18-20), the references fail to explicitly disclose the method further comprising the step of: if the history cache is full, updating the statistical model includes removing a least recent event from the statistical model. Nonetheless, this would have been an obvious modification to the aforementioned method, to one of ordinary skill in the art at the time of the invention, as further evidenced by Steinbiss.

In an analogous art, Steinbiss discloses a method for employing stochastic models that involves storing recently recognized elements in a cache, (abstract; column 2, lines 25-38; and column 5, lines 15-30). Steinbiss further discloses once the cache is full, removing the least recently stored element, (column 5, line 60 to column 6, line 7). This modification would have been obvious, because one of ordinary skill in the art would have been so motivated to implement this feature so as to maximize available memory space, thereby reducing cost associated with larger capacity cache memories, (Steinbiss column 5, line 66 to column 6, line 3).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaShanya R Nash whose telephone number is (571) 272-3957. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LaShanya Nash
Art Unit, 2153
October 13, 2006

KRISNA LIM
PRIMARY EXAMINER